

SACCHARUM OR SACCHAROPHORUM ?

ELIZABETH A. SHAW

For years a subject of occasional, but heated, controversy has been the correct name for the common eastern sugar maple. Is it *Acer saccharum* Marshall (1785) or is it *Acer saccharophorum* Koch (1853)? For nearly a century, Marshall's name has been the one more often used, but recently the epithet "saccharophorum" was revived by R. T. Clausen in "Sedum of North America north of the Mexican Plateau" (1975). In discussing the habitat of *Sedum ternatum*, Clausen mentions (p. 106) that in the Ocoee River gorge in southeastern Tennessee this species occurs in the shade of *Acer nigrum* ssp. *saccharophorum* (Koch) Clausen, and in a footnote on this page, the combination actually is made. Unfortunately, the epithet "saccharophorum" cannot be used for the sugar maple, either if it be treated as a species distinct from *A. nigrum* Michx. f., the black maple, or if the two be treated as conspecific.

Linnaeus in *Species Plantarum* (1753) described nine species of *Acer*, four of them from America; i.e., *A. rubrum*, *A. saccharinum*, *A. pensylvanicum*, and *A. Negundo*. He said nothing of the uses or properties of any of these, but his use of the epithet "saccharinum" does suggest that Linnaeus thought that he was describing a species of maple from which sugar is obtained. The specimen which Linnaeus had before him had come from Pehr Kalm who knew the sugar maple well, and had discussed it at length in an article on sugar-producing trees of North America (Kalm, 1751). Post-Linnaean writers on American trees, such as von Wangenheim and the two Michauxes, unhesitatingly accepted the name *Acer saccharinum* for the sugar maple.

In the first volume of *Flora of North America*, published by Torrey and Gray in October, 1838, the sugar maple appears as *Acer saccharinum* Linn. In November of that year Gray left for Europe with the prime purpose of wresting from European herbaria and botanists "... control of the source material on North American plants by resolving disputed points of nomenclature and establishing the *Flora* as the authoritative base for future work." (Dupree, p. 74. 1959). Toward this end, Gray spent the next year visiting all of the important herbaria in England and

on the continent, and in making detailed notes on the contents of each. In his notes on the Linnaean herbarium one finds under *Acer*, "saccharinum sp. Kalm/only! The spec. is *A. eriocarpum*!! so is descr." *Acer eriocarpum* is a name for the silver maple, as is *A. dasycarpum* Ehrh. Some of the results of Gray's work in Europe appeared in the supplement (published in June, 1840) to the first volume of the Flora. On page 684 is a short and, to us, startling comment. The specimen from Pehr Kalm in the Linnaean herbarium, the type of the name *Acer saccharinum*, ". . . we find on examination, belongs to *A. dasycarpum*!" i.e., to the silver maple. Torrey and Gray pointed out that von Wangelheim and the Michauxes had, however, applied the name *Acer saccharinum* to the sugar maple, not to the silver maple, and concluded that ". . . a change in the application of the name would be unwarrantable." As Fernald a century later (1945) pointed out, the days of such enviable innocence are past.

The story behind Linnaeus' confusion has been well described in Rousseau (1940). Kalm had three sets of the collections he made in North America. One, now at LINN, went to Linnaeus, a second set, now at UPS, was given by Kalm to Queen Lovisa Ulrika of Sweden for her herbarium; the third, kept by Kalm, probably was lost in a fire which nearly destroyed the city of Abö (now Turku, Finland) in 1827 (see Juel & Harshberger, 1930). Queen Lovisa Ulrika's specimen of *Acer saccharinum*, so annotated by Kalm himself, is a sugar maple, but Linnaeus received a silver maple.

Although Torrey and Gray were content that the sugar maple remain *Acer saccharinum*, others were not. In his Hortus Dendrologicus (1853) Karl Koch supplied a new name, *A. saccharophorum*, for the sugar maple and there is no doubt that Koch's name refers to this species. Also in his list of maples are *A. nigrum* Michx. f., the black maple, and *A. saccharinum*, under which are several synonyms, among them *A. dasycarpum* Ehrh., all referring to the silver maple. Koch cited "saccharinum Mich. fil. hist. d. arbs. for. de l'Amer. sept. . . ." and this is certainly the sugar maple. Michaux has a few lines of diagnostic description, followed by several pages of information on distribution, ecology, characters of the wood, methods of preparing maple sugar, and a recipe for maple beer. *Acer saccharophorum* Koch is a name for the sugar maple.

But is there an earlier name for this species? If one accepts *Acer saccharum* Marshall (1785), there is. Humphrey Marshall of Chester County, Pennsylvania, cousin of John Bartram, was an amateur of botany, and a dealer in seeds and plants, who in 1785 published "Arbustrum Americanum: The American Grove," the first book published in this country on native woody plants. In the introduction Marshall notes that he has used "Linnaean Generic and trivial names (or new formed ones where these have been wanting) together with their most common approved English ones: . . ." There are no synonyms and no references cited, for Marshall felt that most of his readers ". . . would have been more embarrassed and confused than profited thereby . . ." The first genus treated is *Acer*, with six species, including "6. *Acer saccharum*. The Sugar Maple." Marshall's book was well received in Europe and in 1788 were published, in Paris, a French edition translated and augmented by a M. Lézermes, and in Leipzig, a German edition similarly dealt with by C. F. Hoffmann. Each translator, apparently on his own initiative, changed "saccharum" to "saccharinum." Marshall's *Acer saccharum* was ignored, except when it appeared as a synonym, until 1890 when Britton adopted it for the sugar maple in a list of plants of New Jersey, and it has been generally, although not always, used since then.

The controversy swirls around the epithet "saccharum." Was Marshall's use of this name an error of orthography or typography, or was it the deliberate provision of a name for a species, the sugar maple, at that time not yet described? Marshall did describe several "new species," among them *Betula papyrifera* and *Nyssa sylvatica*, with no indication that they were new. On the other hand, either Marshall or his printer was indeed very careless. Rousseau (p. 40., 1940), strongly anti-"saccharum," provides a list of sixteen, "entres autres" errors of orthography or typography of names in Marshall's book. Even Arbustrum of the title should be "Arbustum."

Rousseau contended that Marshall's name was a simple spelling mistake, and that he included under this name both the sugar and the black maple. In support of the spelling mistake claim, Rousseau cited the name *Acer saccatum* Miller (1771) as an example of another orthographic error and argued that Marshall's name really was no different. But Miller (Gard. Dict. abr. ed. 6.

1771) gave a clear reference to "Lin. Sp. Pl. 1055"; Marshall did not. It is easy to argue that Marshall intended to use the epithet "saccharinum" for the sugar maple, that *Acer saccharum* is a mistake — of no nomenclatural standing, and that the earliest name for the sugar maple is Koch's *A. saccharophorum*. However, one cannot know what Humphrey Marshall intended to do; we know only what he did. He published the name *Acer saccharum*. As for the claim that the name refers both to the sugar and the black maples, many authors, including Torrey and Gray, Rousseau himself, Desmarais (1952), and Clausen, have considered the two to be conspecific; e.g. *Acer saccharophorum* var. *nigrum* (Michx. f.) Rousseau, *A. saccharum* ssp. *nigrum* (Michx. f.) Desmarais, and *A. nigrum* ssp. *saccharophorum* (Koch) Clausen.

Thus *Acer saccharophorum* Koch is not the earliest name for the sugar maple. Moreover, one cannot argue that since a name or an epithet has priority only in its own rank, the epithet "saccharophorum" can, or now must, be used if the sugar maple (in the most narrow sense) is treated as a taxon of infraspecific rank under *A. nigrum* Michx. f. If the sugar and black maples are treated as conspecific, the species must be called *Acer saccharum* Marshall, and the black maple is then, according to one's taste in classification, either *A. saccharum* var. *nigrum* (Michx. f.) Britton, or *A. saccharum* ssp. *nigrum* (Michx. f.) Desmarais.

LITERATURE CITED

- BRITTON, N. L. 1890. Catalogue of plants found in New Jersey. Geol. Survey N. Jersey Rep. State Geologist 2: 25-642.
- CLAUSEN, R. T. 1975. Sedum of North America north of the Mexican Plateau. Ithaca and London.
- DESMARAIS, Y. 1952. Dynamics of leaf variation in the sugar maples. Brittonia 7: 347-387.
- DUPREE, A. H. 1959. Asa Gray. Cambridge.
- FERNALD, M. L. 1945. Botanical specialities of the Seward Forest and adjacent areas of southeastern Virginia. Rhodora 47: 149-182.
- JUEL, H. O., & J. W. HARSHBERGER. 1929. New light on the collection of North American plants made by Peter Kalm. Proc. Acad. Nat. Sci. Philad. 81: 297-303.
- KALM, P. 1751. Beskrifning Huru Socker goeres uti Norra America af atskilliga flags traen. Kongl. Svenska Vetensk. Acad. Handl. 12: 143-159.
- KOCH, K. 1853. Hortus Dendrologicus. Berlin.

- MARSHALL, H. 1785. *Arbustrum Americanum: The American Grove*. Philadelphia.
- . 1788. C. F. HOFFMANN, trans. & ed. *Beschreibung der wildwachsenden Bäume und Staudengewächse in den vereinigten Staaten von Nordamerika von Humphry Marshall*. Leipzig.
- . 1788. LÉZERMES, trans. & ed. *Catalogue alphabétique des arbres et arbrisseaux*. Paris.
- MICHAUX, A. 1803. *Flora boreali-americana*. Paris, Strasbourg.
- MICHAUX, F. A. 1813. *Histoire des arbres forestiers de l'Amerique septentrionale*. vol. 3. Paris.
- ROUSSEAU, J. 1940. Histoire de la nomenclature de l'*Acer saccharophorum* K. Koch (*A. saccharum* Marshall) depuis 1753. *Contr. Inst. Bot. Univ. Montreal* 35: 1-66; *Naturaliste Canad.* 67: 161-200, 201-224.
- WANGENHEIM, F. A. J. VON. 1781. *Beschreibung einiger Nordamerikanische Holz- und Buscharten mit Anwendung auf deutsche Forsten*. Gottingen.

GRAY HERBARIUM OF HARVARD UNIVERSITY
22 DIVINITY AVENUE
CAMBRIDGE, MA. 02138